

# The COAR Interoperability Roadmap

Friedrich Summann

Universitätsbibliothek Bielefeld

Open Access Tage

Zürich 8 – 9 Sept. 2015



## Betroffene COAR Discussion Groups

- Experts Advisory Panel
- Roadmap Editorial Group
- COAR WG2 Interoperability



# Die Vorbereitungsschritte:

- Mail an Experten
- Feedback und Kommentare von Experten
- Interne Diskussionen Editorial Group
- Ableitung der Interoperability Themen
- Ausarbeitung Fragebogen
- Automatische Bearbeitung der Ergebnisse
- Strategische Einführung
- Das Ergebnis: **The Roadmap document**



# Questionnaire

- Issues
- Immediate relevance (1-3 years)
- Future relevance (3-5 years)
- Complexity of implementing (low, medium, high)
- Comments



Issues	Immediate relevance (1-3 years)	Future relevance (3-5 years)	Complexity of implementing (low, medium, high)	Comments
<b>Impact and Visibility</b>				
<b>Strategic Benefit</b>				
Supporting the Visibility of Repositories and their contents including their Relevance and Usage and Impact Metrics	x		medium	
<b>Concrete Issues</b>				
Supporting Search Engine Optimization (SEO)	x		medium	Has to be adopted to the flexible strategies
<i>SEO methods are focused on optimizing the ranking of web sites and their contents in search engines.</i>				





*Promoting greater visibility and application of research through global networks of  
Open Access repositories*

---

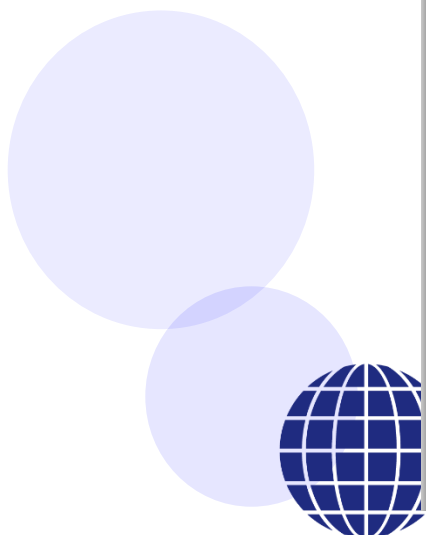
## COAR Roadmap

### Future Directions for Repository Interoperability

---

Working Group 2: Repository Interoperability

February 2015



# Gliederung

## Acknowledgements and Contributors

## Executive Summary

## 1 Introduction

### 1.1 Repositories – the historical context

### 1.2 Trends in scholarly communication

### 1.3 Strategic challenges for interoperability

## 2 The Preparation of the Interoperability Roadmap

### 2.1 Vision, goal and objectives

### 2.2 User requirements

### 2.3 Participating systems and stakeholders

## 3 Interoperability Issues

## 4 Results and Analysis

## 5 Conclusion

## Appendix 1: The Glossary

## Appendix 2: Acronyms and Abbreviations

## Appendix 3: The questionnaire and its response



#### Lead Editors:

- **Friedrich Summann**, Bielefeld University, Germany
- **Kathleen Shearer**, Confederation of Open Access Repositories (COAR), Canada

#### Editors:

- **Timo Borst**, Leibniz Information Center for Economics, Germany
- **Pablo de Castro**, EDINA National Data Centre Edinburgh, UK
- **Wolfram Horstmann**, University of Göttingen, Germany
- **Alicia López Medina**, National Distance Education University Madrid, Spain
- **Katharina Müller**, University of Göttingen, Germany
- **Maxie Putlitz**, University of Göttingen, Germany
- **Eloy Rodrigues**, University of Minho, Portugal
- **Jochen Schirrwagen**, Bielefeld University, Germany

#### Experts and Reviewers:

- **Isidro Aguillo**, CINDOC-CSIC, Spain
- **Ana Alice Baptista**, University of Minho, Portugal
- **Tom Beirender**, World Bank Group, USA
- **Daniel Beucke**, University of Göttingen, Germany
- **Sheridan Brown**, V4OA Project Consultant, UK
- **Donatella Castelli**, Italian National Research Council, Italy
- **Gernot Deinzer**, University of Regensburg, Germany
- **Patrick Hochstenbach**, Ghent University, Belgium
- **Maarten Hoogerwerf**, Data Archiving and Networked Services (DANS), The Netherlands
- **Keith G. Jeffery**, Consultant, UK
- **Johannes Keizer**, Food and Agriculture Organization of the United Nations, Italy
- **Thomas Krichel**, Long Island University, USA
- **Clifford Lynch**, Coalition for Networked Information (CNI), USA
- **Devika Madalli**, Indian Statistical Institute, India
- **Salvatore Mele**, CERN, Switzerland
- **Susan Reilly**, LIBER (Association of European Research Libraries), The Netherlands
- **Frank Scholze**, Karlsruhe Institute of Technology (KIT), Germany
- **Miguel Ángel Sicilia**, University of Alcalá, Spain
- **Paul Vierkant**, Humboldt University of Berlin, Germany
- **Paul Walk**, University of Bath, UK



# Ziele

- Identifizieren der Nutzer-Wünsche und der Arbeitsabläufe
- Identifizieren der Interessen der weiteren Beteiligten (Institutionen, Förderorganisationen, Verlage, Informationsanbieter ...)
- Ermittlung der erforderlichen Schnittstellen-Technologie
- Definition einer Prioritätenliste der Aktionsfelder



Stakeholder	Users requirements
Researcher as an author	<ul style="list-style-type: none"> <li>• Easy metadata feeds (including re-using existing data)</li> <li>• Upload documents easily</li> <li>• Easy and comfortable creation of complex data relations</li> <li>• Automatic addition of linked data</li> <li>• High visibility of his digital objects/documents/scientific profile and relations</li> <li>• Easy embedding of publications in different working environments (personal publication lists, virtual research environments, etc.)</li> <li>• Comfortable creating of complex documents (enhanced publications)</li> <li>• Transparent usage statistics (download and citation frequencies)</li> <li>• Easy storage and publishing solutions for articles, journals, monographs, working papers</li> </ul>
Researcher as reader/end user	<ul style="list-style-type: none"> <li>• Open Access to publications</li> <li>• Visible references of their publications in secondary environments</li> <li>• Comfortable search tools</li> <li>• Visualized complex information on publication relationships (to other (similar or recommended) publications, to related research data)</li> <li>• Transparent <u>bibliometric</u> information</li> <li>• Stable document links</li> <li>• Stable and safe document storage (Long-term preservation)</li> </ul>
Institution	<ul style="list-style-type: none"> <li>• Exposure of their affiliated publication output (institutional bibliography)</li> <li>• Document and report research output information for assessment and compliance monitoring</li> </ul>
Funder	<ul style="list-style-type: none"> <li>• Assess impact of funded research outcome</li> <li>• Provide open access to research outputs</li> <li>• Track and monitor research outputs</li> </ul>
External stakeholder (publisher, information company, service provider)	<ul style="list-style-type: none"> <li>• Comprehensive, high quality, and standardized metadata information on publications and research data in order to reuse them</li> </ul>



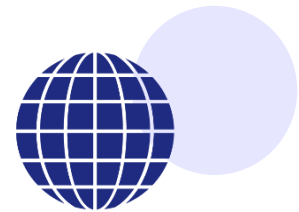
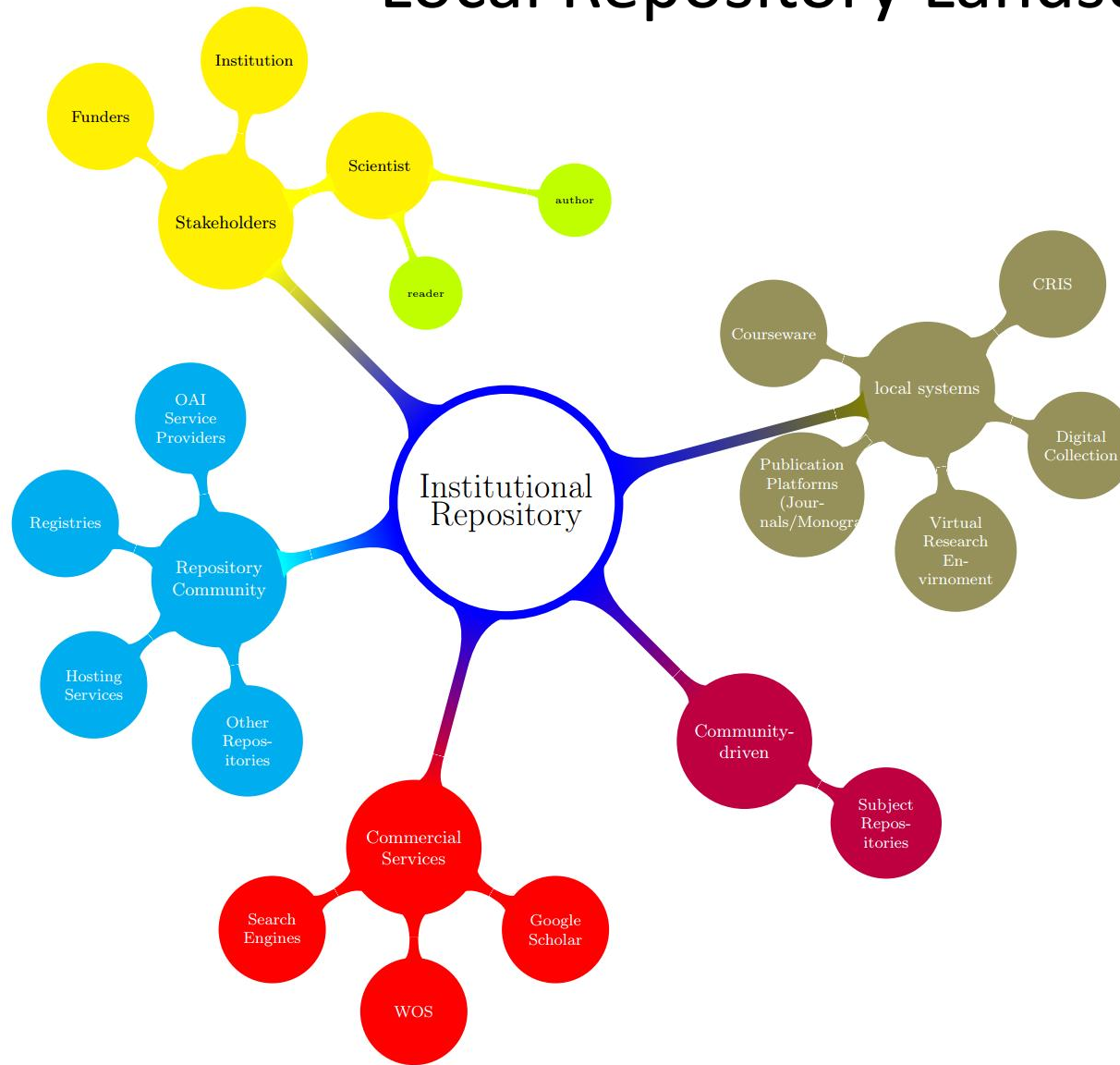
# Institutionelle Repositorien – verbundene Systeme



- Aggregator Services
- Bibliographic Management Tools
- Current Research Information Systems (CRISs)
- Digital Collections
- Discipline-based Repositories
- E-Learning Systems
- Hosting Services
- Internet Search Engines
- Local Library Systems (catalogues)
- Publication Management Systems
- Publishing Systems (journals, monographs)
- Research Data Repositories
- Virtual Research Environments (VREs)
- Other Global Services and Players



# Local Repository Landscape



## 35 Issues grouped in

- Key Aspect: Impact and Visibility
- Key Aspect: Data Issues
- Key Aspect: Validation and Aggregation
- Key Aspect: Usability
- Key Aspect: Sustainability
- Key Aspect: Technical Issues



### **Impact and Visibility**

- Supporting Search Engine Optimization (SEO)
- Supporting Repository Ranking Systems
- Exposing Usage Statistics
- Exposing Bibliometric Information
- Supporting Visibility in Repository Registries
- Improving Registry Infrastructure

### **Usability**

- Supporting Authorization and Authentication
- Supporting Embedding Services
- Exposing Publication Lists
- Exposing Citation Formats
- Supporting Data Export Functions
- Integrating Availability Services
- Supporting Author Identification Systems
- Supporting Institutional Services
- Extending End-User Usability
- Extending Usage of Visualization Tools

### **Sustainability**

- Improving Platform Stability
- Supporting Long-term Preservation and Archiving
- Exposing Persistent Identifiers
- Integrating different Persistent Identifiers

### **Data Issues**

- Supporting additional Metadata Format(s)
- Improving Metadata Quality (Data Curation)
- Supporting Enhanced Publications
- Supporting Linked (Open) Data
- Publication of Research Data
- Handling of Complex/Compound/Nested Repository Objects
- Monitoring Open Access Mandate Compliance
- Exposing Versioning Information

### **Validation and Aggregation**

- Validating Repository Metadata
- Processing Related Full-text
- De Duplication

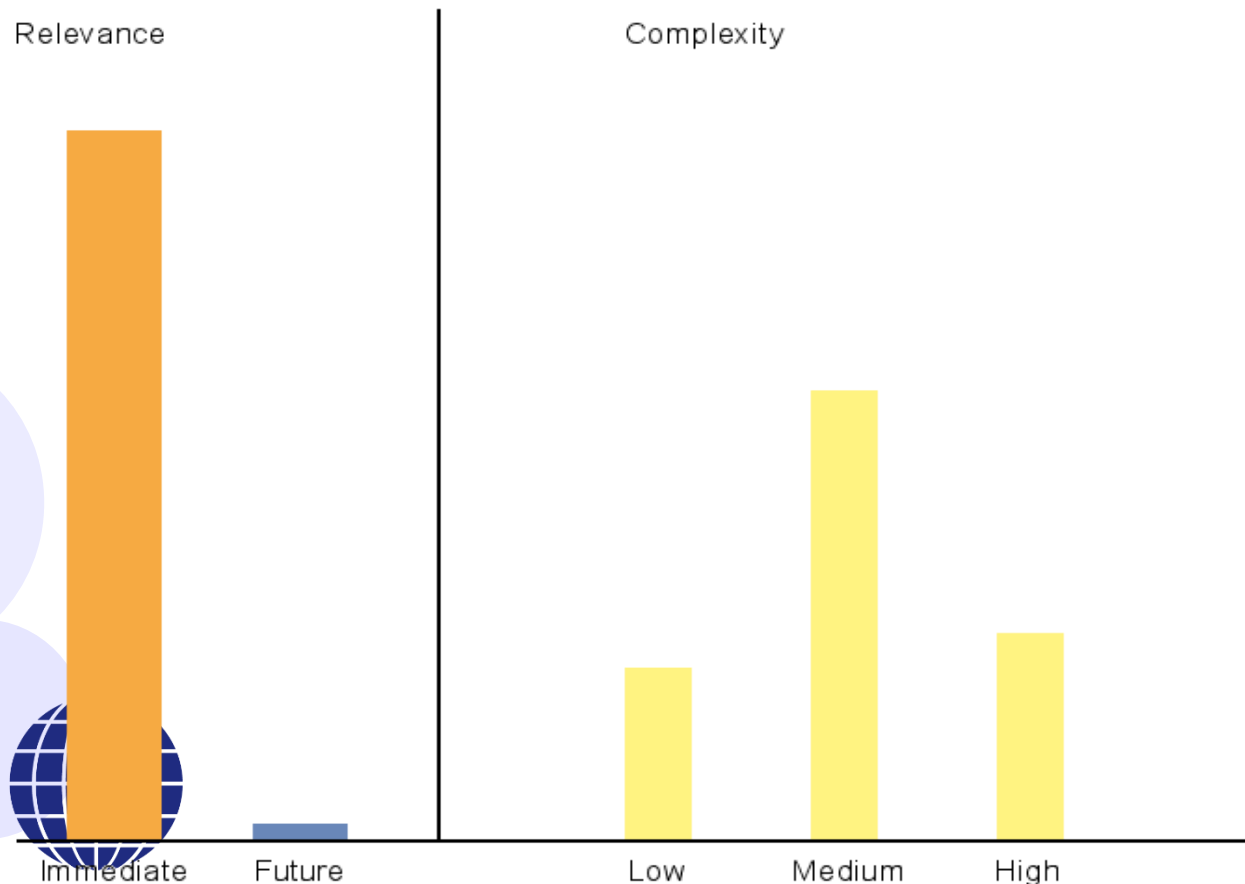
### **Technical Issues**

- Defining Architectural Recommendations for Repositories and their Interoperability
- Extending/Replacing Metadata Exposition Protocols
- Supporting OAI Service Provider Usage
- Supporting Deposit Protocols

## Issue: Supporting additional Metadata format(s)

Currently repositories deliver metadata mostly via OAI-PMH in Dublin Core format as mandatory and some of them support a broad variety of extended formats. Since DC is interrelated with a limited number of tags and a certain vagueness of interpretation there is a strong need to agree for alternative, more convenient metadata formats offering finer granularity. Potential formats to be considered (and depending on the purpose) are MODS, METS, MARC, CERIF and others.

### Supporting additional metadata format(s)



## Comments

*“Broader discussion among repo stakeholders, guidelines and training needed”*

*“If DC as a generic format is not good enough, then it needs to be improved or replaced. We don’t want additional formats for the same purpose.”*

---

COAR Office at Goettingen State and University Library  
Platz der Göttinger Sieben 1, D-37073 Göttingen, Germany, Tel. +49 551 39 22215, Fax +49 551 39 5222  
office@coar-repositories.org

34

COAR Roadmap – Future Directions for Repository Interoperability



*“Depends on community and complexity of additional format”*

*“Adding more standards when they bring richness and detail is a key step to move forward in the current situation. The complexity of course depends on number and complexity of the new adoptions. DC is no longer useful for advancing in the field.”*

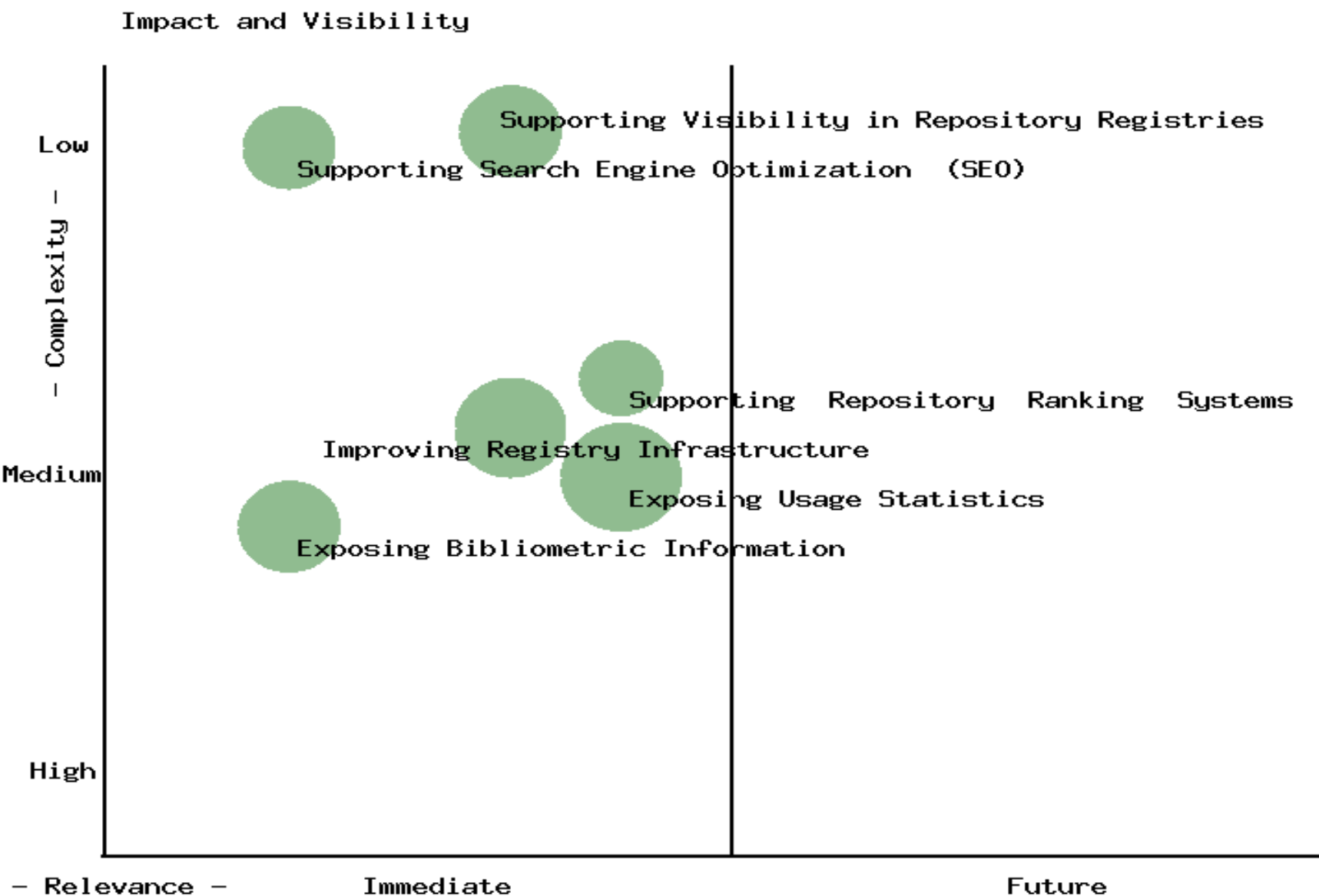


	Short term	Medium term	Long term
<b>Low Complexity</b>	<ul style="list-style-type: none"> <li>• Exposing Citation Formats</li> <li>• Supporting Data Export Functions</li> <li>• Supporting Author Identification Systems</li> <li>• Supporting Search Engine Optimization (SEO)</li> <li>• Exposing Publication Lists</li> <li>• Integrating Different Persistent Identifiers</li> </ul>	<ul style="list-style-type: none"> <li>• Exposing Persistent Identifiers</li> <li>• Supporting Authorization and Authentication</li> <li>• Improving Platform Stability</li> <li>• Supporting Institutional Services</li> <li>• Extending End-User Usability</li> <li>• Validating Repository Metadata</li> <li>• Supporting Visibility in Repository Registries</li> <li>• Supporting OAI Service Provider Usage</li> <li>• Integrating Availability Services</li> <li>• Supporting Embedding Services</li> <li>• Supporting Repository Ranking Systems</li> </ul>	

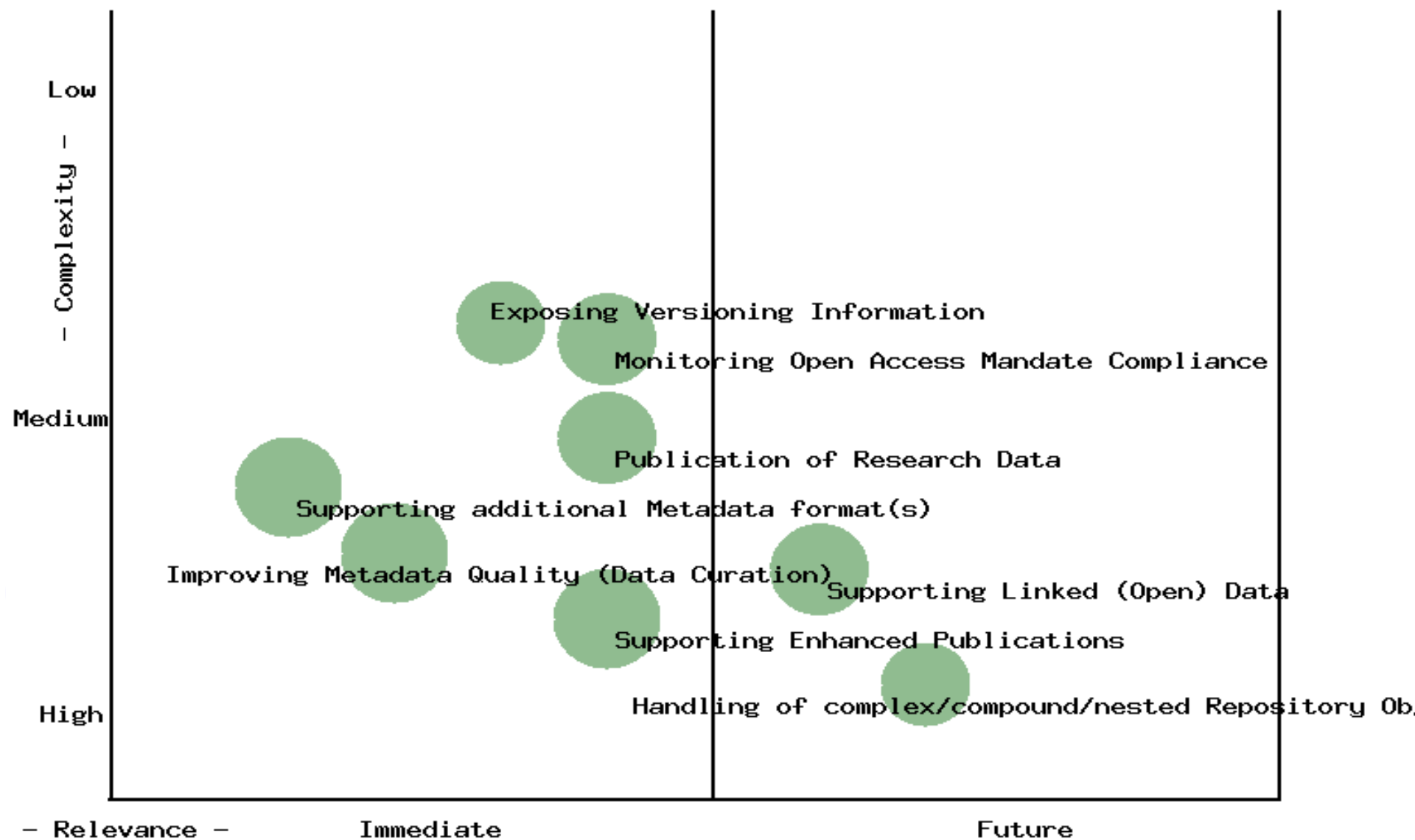


<b>Moderate Complexity</b>	<ul style="list-style-type: none"> <li>• Exposing <u>Bibliometric</u> Information</li> </ul>	<ul style="list-style-type: none"> <li>• Exposing Versioning Information</li> <li>• De Duplication</li> <li>• Improving Registry Infrastructure</li> <li>• Monitoring Open Access Mandate Compliance</li> <li>• </li> </ul>	
<b>High Complexity</b>	<ul style="list-style-type: none"> <li>• Exposing Usage Statistics</li> <li>• Supporting Additional Metadata Format(s)</li> </ul>	<ul style="list-style-type: none"> <li>• Publication of Research Data</li> <li>• Improving Metadata Quality (Data Curation)</li> <li>• Processing Related <u>Fulltext</u></li> <li>• Supporting Deposit Protocols</li> <li>• Defining Architectural Recommendations for Repositories and their Interoperability</li> <li>• Supporting Enhanced Publications</li> </ul>	<ul style="list-style-type: none"> <li>• Extending Usage of Visualization Tools</li> <li>• Supporting Linked (Open) Data</li> <li>• Extending/Replacing Metadata Exposition Protocols</li> <li>• Handling of Complex/Compound/Nested Repository Objects</li> <li>• Supporting Long-term Preservation and Archiving</li> </ul>

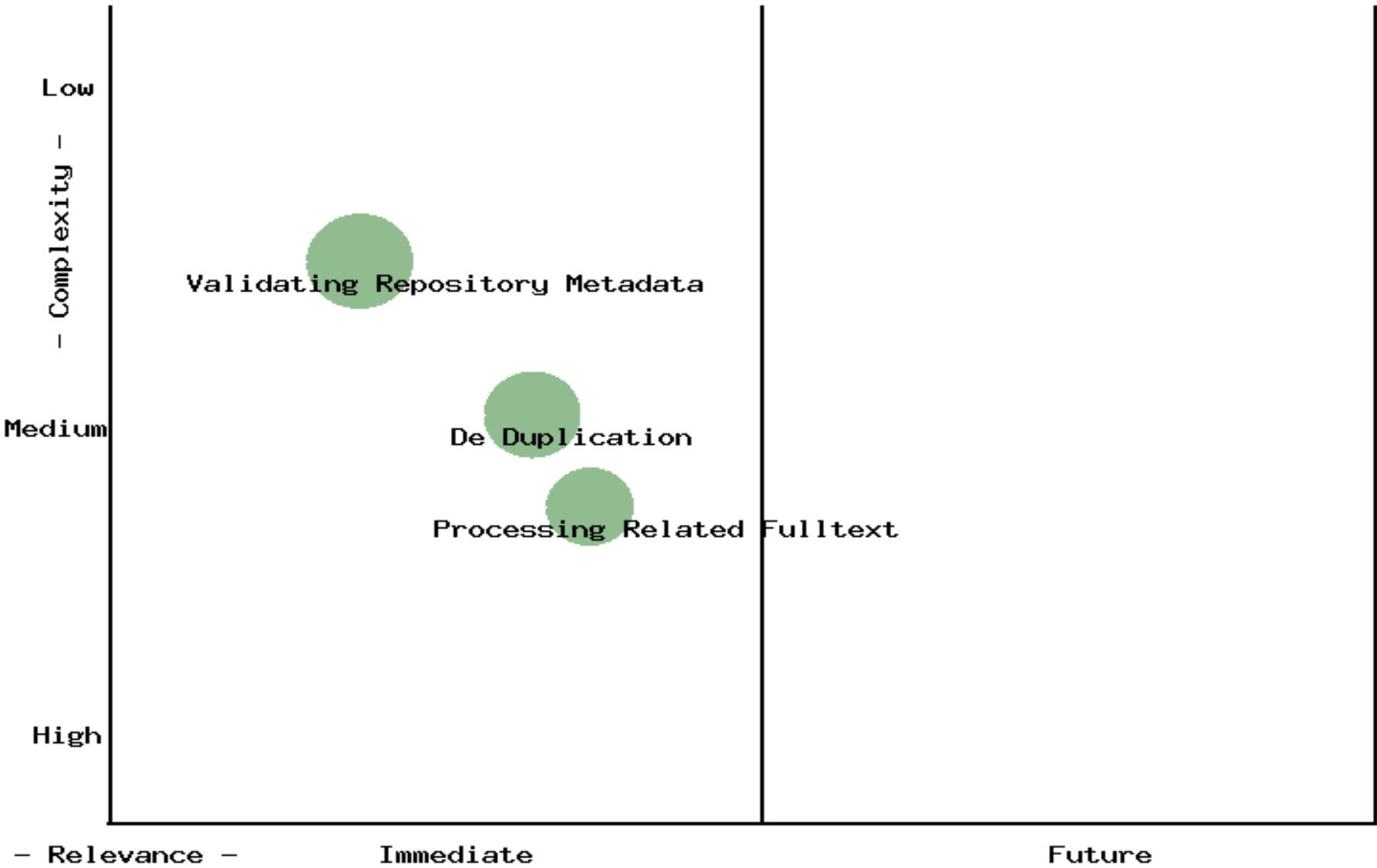




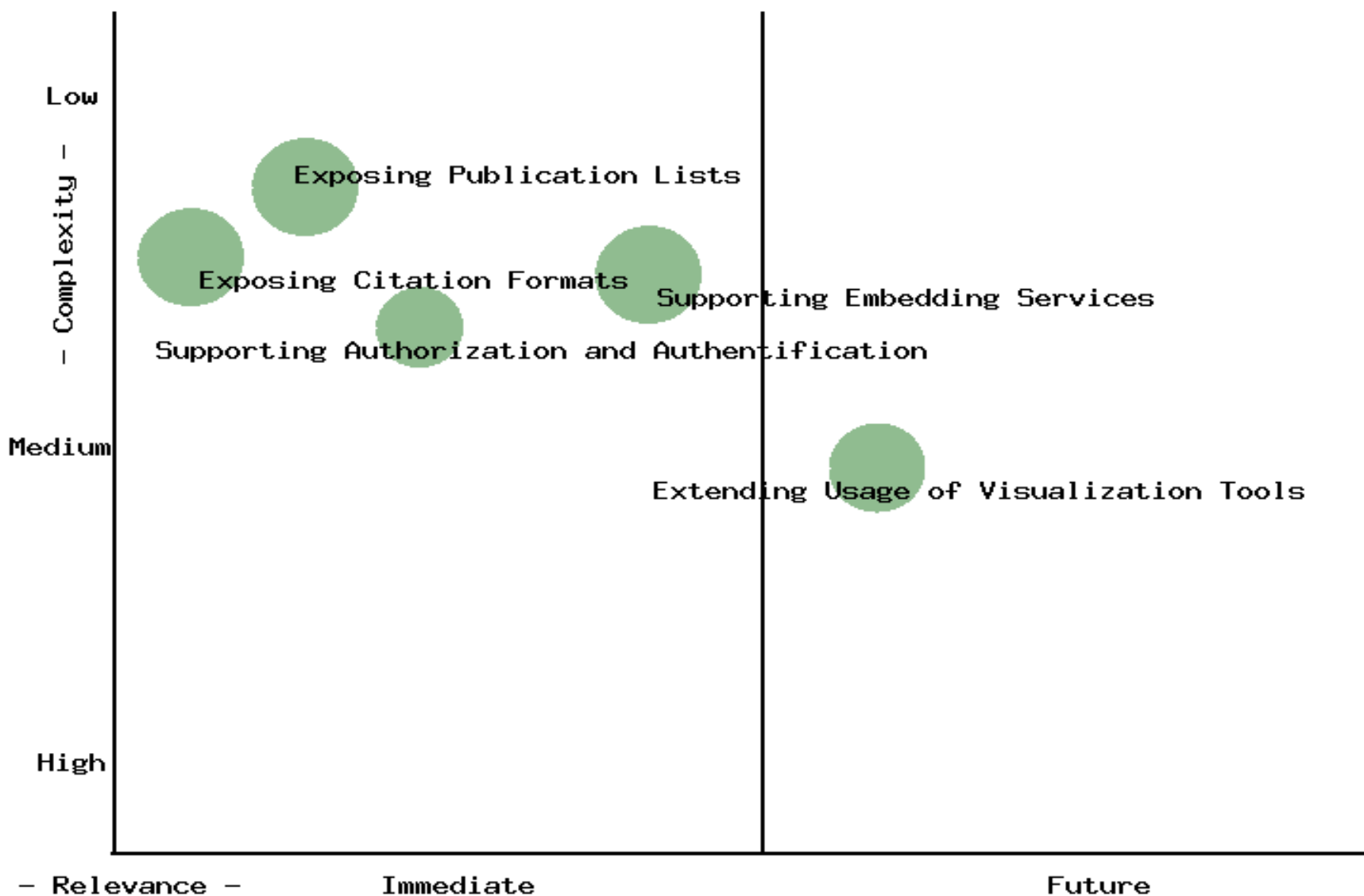
## Data Issues



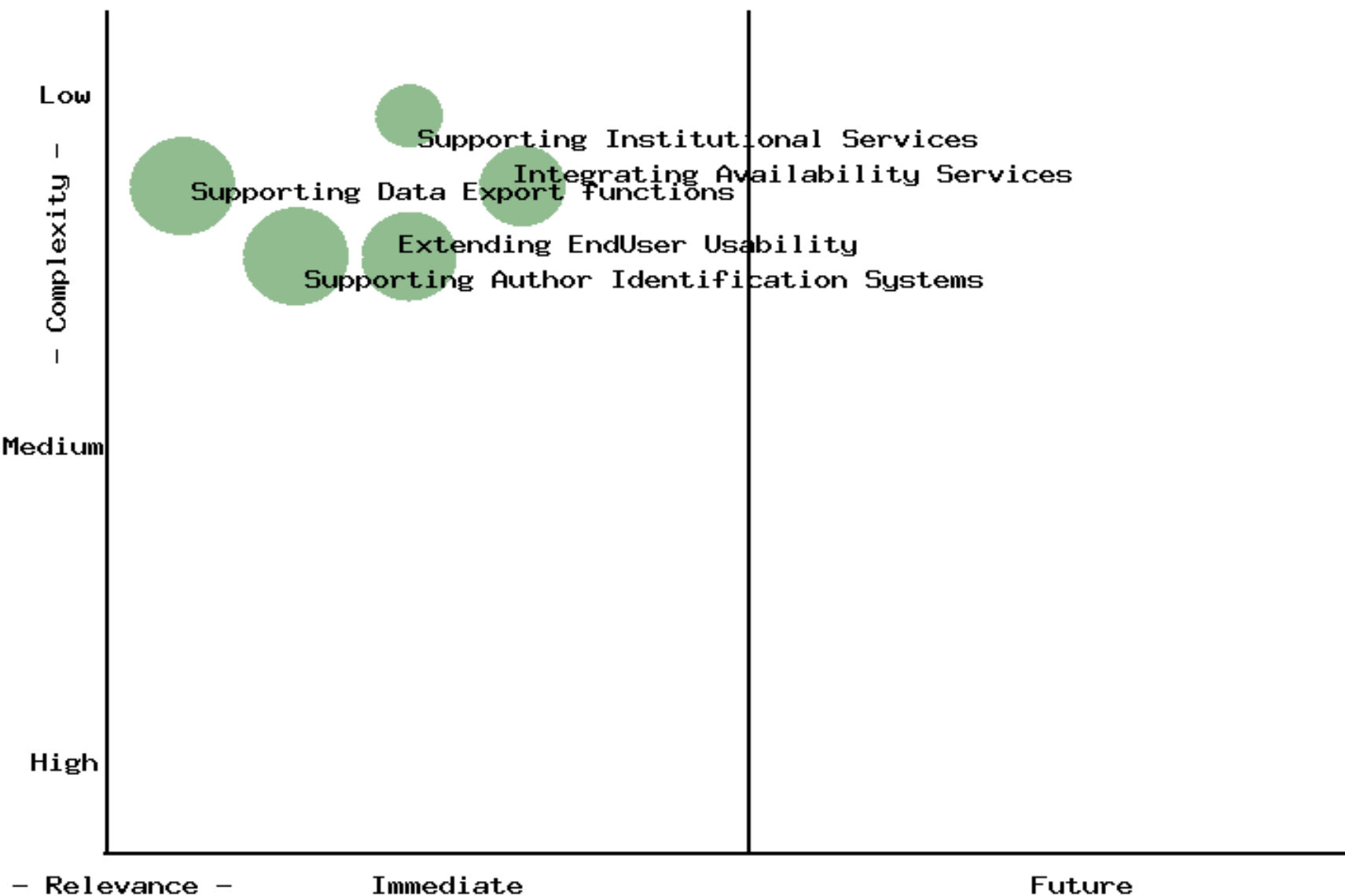
Validation and Aggregation



## Usability 1



## Usability 2







# Technical Issues



## 5 Conclusion

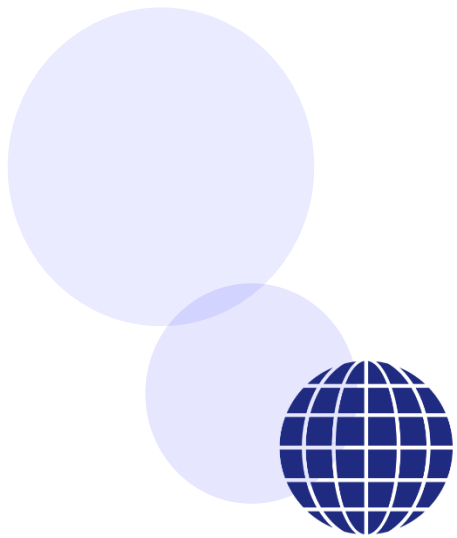
COAR will consider various paths for improving interoperability in the priority areas:

- What work is involved in ensuring interoperability in priority areas?
- Which stakeholders must be included in implementation and how can we best engage them in these activities? Particularly important will be the participation of the repository platform developers, as this is an essential strategy for widespread adoption.

In terms of next steps, COAR will:

1. Disseminate the roadmap and its results to COAR members and the broader community of stakeholders, in particular:
  - a. Regional/National Repository Networks
  - b. Repository Platform Communities
  - c. Repository Managers
  - d. Other related stakeholders (e.g. research administrative communities, publishers)
2. Build support and awareness of the benefits and need for interoperability
3. Support dialogue and progress towards the adoption of common approaches across regions and stakeholder communities
4. Develop and undertake strategies for implementing standards in repositories

Clearly, as a global organization, COAR has an important role to play in connecting these various communities and coalescing around some best practices. In addition, COAR can coordinate the essential efforts for preparing underlying definitions, recommendations and guidelines to assist the development and implementation process.



# IR Interoperability

- The special case: CRIS-IR interoperability
- The common intersection: Publications
- The challenges:
  - The format question (CERIF – DC/MODS/MARC)
  - Related Services



CRIS	IR
Internal	Externally-orientated
Research Office	Library
Research Information Mgt.	Open Access
Metadata	Fulltext
Automatic Harvesting	Self/Archive/Mediate Deposit
CERIF	DC METS MODS
Proprietary Software	Open Source

Firefox

CONVERIS - Anmeldung x EuroCRIS | Research Information | CE... x Toad Data Modeler - HTML report x OpenAIRE schirrwagen

www.eurocris.org/Uploads/Web pages/CERIF-1.6/documentation/MImage.html

ER Diagram

Model Info ER Diagram Entities Attributes Keys Relationships Domains

\_\_Base Entities in Context  
\_\_Indicators and Measurements in Context  
\_\_Infrastructure  
\_\_Result Entity  
\_\_Second Level  
\_\_Additional  
\_\_Semantic Layer  
Addresses  
Event  
Federated Identifier  
Funding  
Indicator and Main model  
Medium  
Multiple Person  
Organisation  
Person  
Prize Award  
Project  
ResultPatent  
ResultProduct  
ResultPublic

The “atomic structure” of the CERIF-XML set of schemas has been criticised by the OAR community as being too much a technically inspired structural copy of the CERIF database structure

cfDCRelation

cfDCId Char(32 BYTE) NN (PK)

cfDCTitle Char(32 BYTE) NN (PK)

cfDCId Char(32 BYTE) NN (PK)

cfDCScheme Char(32 BYTE) NN (PK)

cfDCLangTag Char(5 BYTE) NN (PK)

cfDCType Char(30 BYTE)

cfDCValue NClob


cfDCType Char(30 BYTE)

cfDCValue NClob

Page Discussion

OpenAIRE Guidelines: For CRIS

Contents [hide]



# Why some institutions prefer to run CRISs

- Very comprehensive research information collection
- Oriented towards research reporting and evaluation (REF in the UK a big driver for CRISs)
- CRISs allow to deal with research funding at internal level -- very valued feature by Research Office managers
- CRISs will automatically harvest most institutional publications from external databases (it's about references not necessarily full-text)
- CRISs can now work as repositories: CRIS-as-IR use case
- CRISs will link to admin systems like HR or Finance
- CRISs (often) use CERIF as metadata standard -- very comprehensive and will ensure interoperability with funder systems



## Comments – CRIS features

Pure is useful because it's one of the few systems that pulls data in from elsewhere


# Why other institutions will keep using their repositories

- Emphasis on showcasing and offering Open Access to the institutional research output
- CRISs are very expensive and difficult to implement
- Repositories can rather effectively (and easily) be managed from the Library
- Repositories' publication-centered metadata model may be enhanced to collect additional info: IR-as-CRIS use case
- There are now funder mandates requiring Open Access for the next national research asses



---

## EPrints: a hybrid CRIS/repository

 Share

Carr, Leslie (2010) EPrints: a hybrid CRIS/repository. At *Workshop on CRIS, CERIF and Institutional Repositories, Rome, IT, 10 - 11 May 2010*. 2pp.





# Lösungen

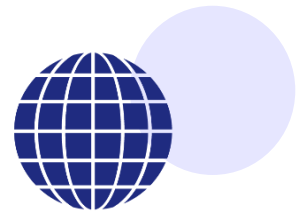
- CRIS-Systeme mit Publikationsnachweis (**CRIS-as-IR**)
- IR mit Projektinformationen (**IR-as-CRIS**)
- Kopplungen CRIS – IR (**CRIS-IR-Interop**)



# CRIS Systeme im Repository Bereich



- PURE (Elsevier)
- Converis (Thomson-Reuters)
- Symplectic
- DSpace IRIS (Open Source)
- Proprietäre Lösungen/Erweiterungen der Repository-Software



# Vorhandene CRIS-Installationen in Europa (Stand: Mai 2013, euroCRIS)

- UK – 57
  - (Pure , Pure-DSpace, Pure-Eprints,
  - Converis-DSpace, Symplectic-DSpace, etc)
- Dänemark – 45
  - (Pure)
- Deutschland – 4
  - (Pure, Converis)
- Italien – 3
  - (Dspace IRIS)



# Three basic use cases: CRIS-as-IR

CRIS replaces repository and by becoming OAI-PMH-compliant it's able to perform its role (at a basic level now, but evolving)

opendoar.org/find.php

OpenDOAR

OpenDOAR Development Blog >

Directory of Open Access Repositories

Home | Find | Suggest | Tools | FAQ | About | Contact Us

Search or Browse for Repositories

[Recent Additions](#)  [RSS1 Feed](#)

Result 1 of 1.

Page: << Previous 1 Next >>

[QUB Research Portal](#) (Queen's University Research Portal)

**Organisation:** [Queen's University, Belfast](#), United Kingdom

**Description:** This is the Institutional Repository of Queen's University Belfast which provides access to the research output of the institution. The interface is available in English.

**OAI-PMH:** <http://pure.qub.ac.uk/ws/oai>

**Software:** PURE

**Size:** 46112 items (2014-05-12)

**Subjects:** Multidisciplinary

**Content:** Articles; References; Conferences; Unpublished; Books; Multimedia; Special

**Languages:** English

**Policies:** Metadata re-use permitted for not-for-profit purposes; Re-use of full data items permitted for not-for-profit purposes; Content policies defined; Submission policies defined; Preservation policies explicitly undefined

**OpenDOAR ID:** 2607, *Last reviewed:* 2014-04-01, [Suggest an update for this record](#), *Missing data is needed for:* [Policies](#)

Link to this record: <http://opendoar.org/id/2607/>



# Three basic use cases: IR-as-CRIS

IR data model and architecture is extended to cover additional aspects such as researchers, organisations and funding information (projects, grants, funder programmes), thus becoming able to play a basic CRIS role for research reporting purposes

## Enlighten: Research and APC funding workflows at the University of Glasgow

Nixon, W.J., Ashworth, S., and McCutcheon, V. (2013) *Enlighten: Research and APC funding workflows at the University of Glasgow*. Insights: the UKSG journal, 26 (2). pp. 159-167. ISSN 2048-7754 (doi:10.1629/2048-7754.80)

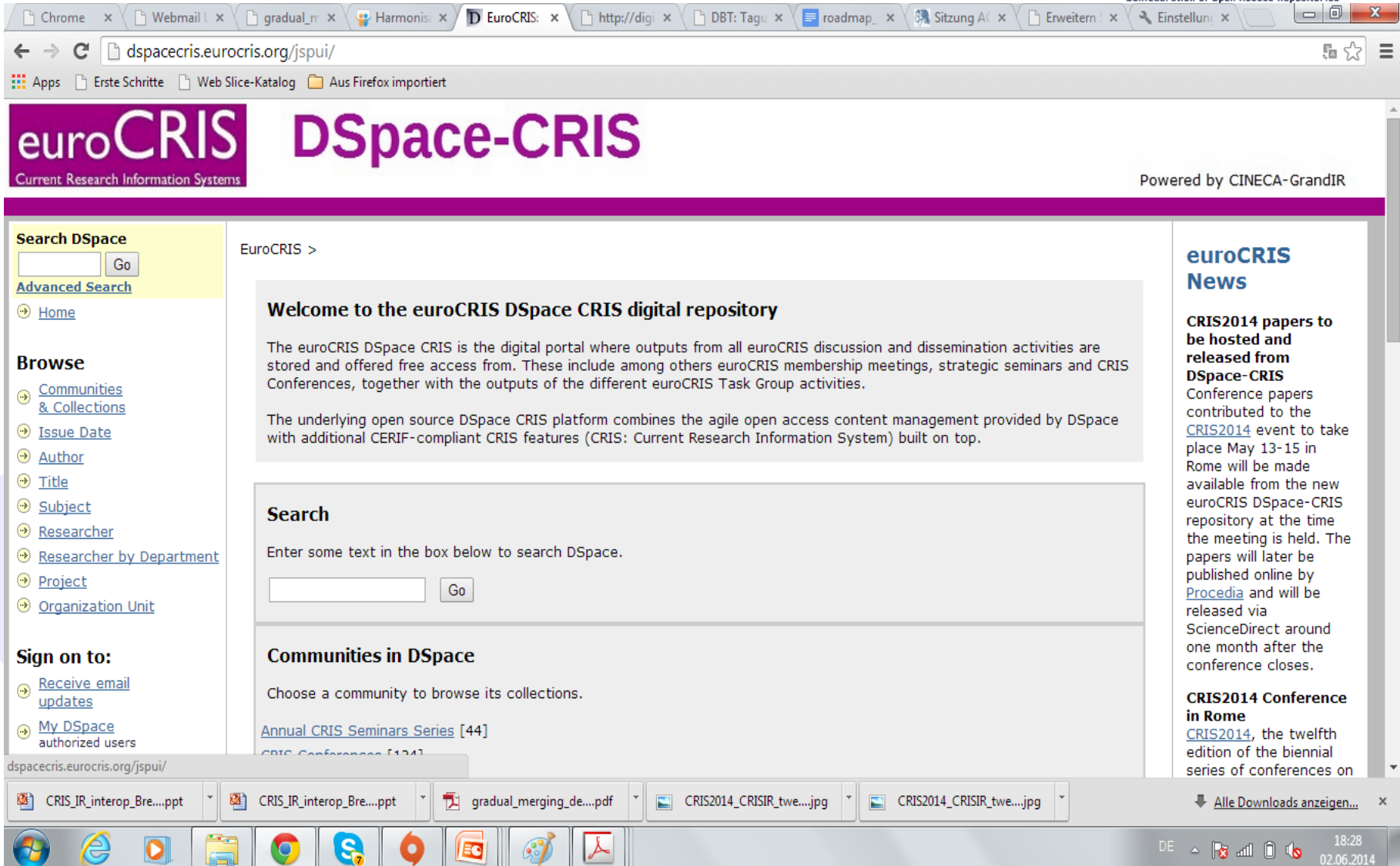
Status:	Published
Refereed:	Yes
Glasgow Author(s):	Padgett, Prof Miles and Dienerowitz, Dr Maria
Authors:	Dienerowitz, M., Gibson, G., Dienerowitz, F., and Padgett, M.
College/School:	College of Science and Engineering > School of Physics and Astronomy
Journal Name:	Journal of Optics
Journal Abbr.:	J. Opt.
ISSN:	2040-8978
ISSN (Online):	2040-8986
Copyright Holders:	Copyright © 2012 European Optical Society
First Published:	First published in Journal of Optics 14(4):045003
Publisher Policy:	Reproduced in accordance with the copyright policy of the publisher

University Staff: Request a correction | Enlighten Editors: Update this record

## Funder and Project Information

Project Award Code	No	Project Name	Principal Investigator	Funder's Name	Funder Ref	Lead Dept
48257	1	Multi-object, high-throughput, spectro-microscopy: Life Sciences Interface	Miles Padgett	Engineering & Physical Sciences Research Council (EPSRC)	EP/H007636/1	Physics and Astronomy

# Three basic use cases: IR-as-CRIS



Chrome x Webmail x gradual\_m x Harmonisi x EuroCRIS: x http://digi x DBT: Tagu x roadmap\_ x Sitzung A( x Erweitern x Einstellun x

← → ↻ dspacecris.eurocris.org/jspui/ ☆ ☰

Apps Erste Schritte Web Slice-Katalog Aus Firefox importiert

**euroCRIS** **DSpace-CRIS**  
Current Research Information Systems

Powered by CINECA-GrandIR

**Search DSpace**  
   
[Advanced Search](#)  
[Home](#)

**Browse**  
[Communities & Collections](#)  
[Issue Date](#)  
[Author](#)  
[Title](#)  
[Subject](#)  
[Researcher](#)  
[Researcher by Department](#)  
[Project](#)  
[Organization Unit](#)

**Sign on to:**  
[Receive email updates](#)  
[My DSpace](#)  
authorized users

EuroCRIS >

**Welcome to the euroCRIS DSpace CRIS digital repository**

The euroCRIS DSpace CRIS is the digital portal where outputs from all euroCRIS discussion and dissemination activities are stored and offered free access from. These include among others euroCRIS membership meetings, strategic seminars and CRIS Conferences, together with the outputs of the different euroCRIS Task Group activities.

The underlying open source DSpace CRIS platform combines the agile open access content management provided by DSpace with additional CERIF-compliant CRIS features (CRIS: Current Research Information System) built on top.

**Search**  
Enter some text in the box below to search DSpace.

**Communities in DSpace**  
Choose a community to browse its collections.  
[Annual CRIS Seminars Series](#) [44]  
[CRIS Conferences](#) [124]

**euroCRIS News**

**CRIS2014 papers to be hosted and released from DSpace-CRIS**  
Conference papers contributed to the [CRIS2014](#) event to take place May 13-15 in Rome will be made available from the new euroCRIS DSpace-CRIS repository at the time the meeting is held. The papers will later be published online by [Procedia](#) and will be released via ScienceDirect around one month after the conference closes.

**CRIS2014 Conference in Rome**  
[CRIS2014](#), the twelfth edition of the biennial series of conferences on

dspacecris.eurocris.org/jspui/

CRIS\_IR\_interop\_Bre...ppt CRIS\_IR\_interop\_Bre...ppt gradual\_merging\_de...pdf CRIS2014\_CRISIR\_twe...jpg CRIS2014\_CRISIR\_twe...jpg

Alle Downloads anzeigen...

DE 18:28 02.06.2014

# Three basic use cases: IR-as-CRIS

Teilen E-Mail Einbetten Gefällt mir Speichern

CRIS2014 – euroCRIS Membership Business Meeting,  
Rome, May 12<sup>th</sup>, 2014



## euroCRIS DSpace-CRIS repository: a mixed CRIS/IR functionality

### Welcome to the euroCRIS DSpace CRIS digital repository

The euroCRIS DSpace CRIS is the digital portal where outputs from all euroCRIS discussion and dissemination activities are stored and offered free access from. These include among others euroCRIS membership meetings, strategic seminars and CRIS Conferences, together with the outputs of the different euroCRIS Task Group activities.


The underlying open source DSpace CRIS platform combines the agile open access content management provided by DSpace with additional CERIF-compliant CRIS features (CRIS: Current Research Information System) built on top.





# Three basic use cases: CRIS-IR-Interop

[Home](#) [Current Staff](#) [Current Postgraduates](#) [Current Students](#) [Administration A-Z](#) [Schools and Subjects](#) [Maps](#) [Contacts](#)

 **University of St Andrews**

Research @ St Andrews Portal

St A  
Res

Research @ St Andrews  
FullText

The St  
feature  
within  
Andrev

Search Repository

[Advanced Search](#)

[Home](#)

Browse

[Communities & Collections](#)

[Issue Date](#)

[Names](#)

[Title](#)

[Subject](#)

[Classification](#)

Sign on to:

[Receive email updates](#)

[My Repository](#)  
authorized users

[Help](#)

Research@StAndrews:FullText >

**Welcome to Research@StAndrews:FullText**

This is a digital repository of research output from the University of St Andrews. From September 2006 the University has required theses to be submitted to the repository. A new Research Information System (RIS) using PURE software has now been implemented. The full text of research papers can now be submitted to the Repository via [PURE](#). The RIS and the Digital Research Repository will continue to integrate services to provide an easy submission process for the full text of research publications. The new [Research@StAndrews portal](#) will provide links to the full text of research publications which are stored in Research@StAndrews:FullText.

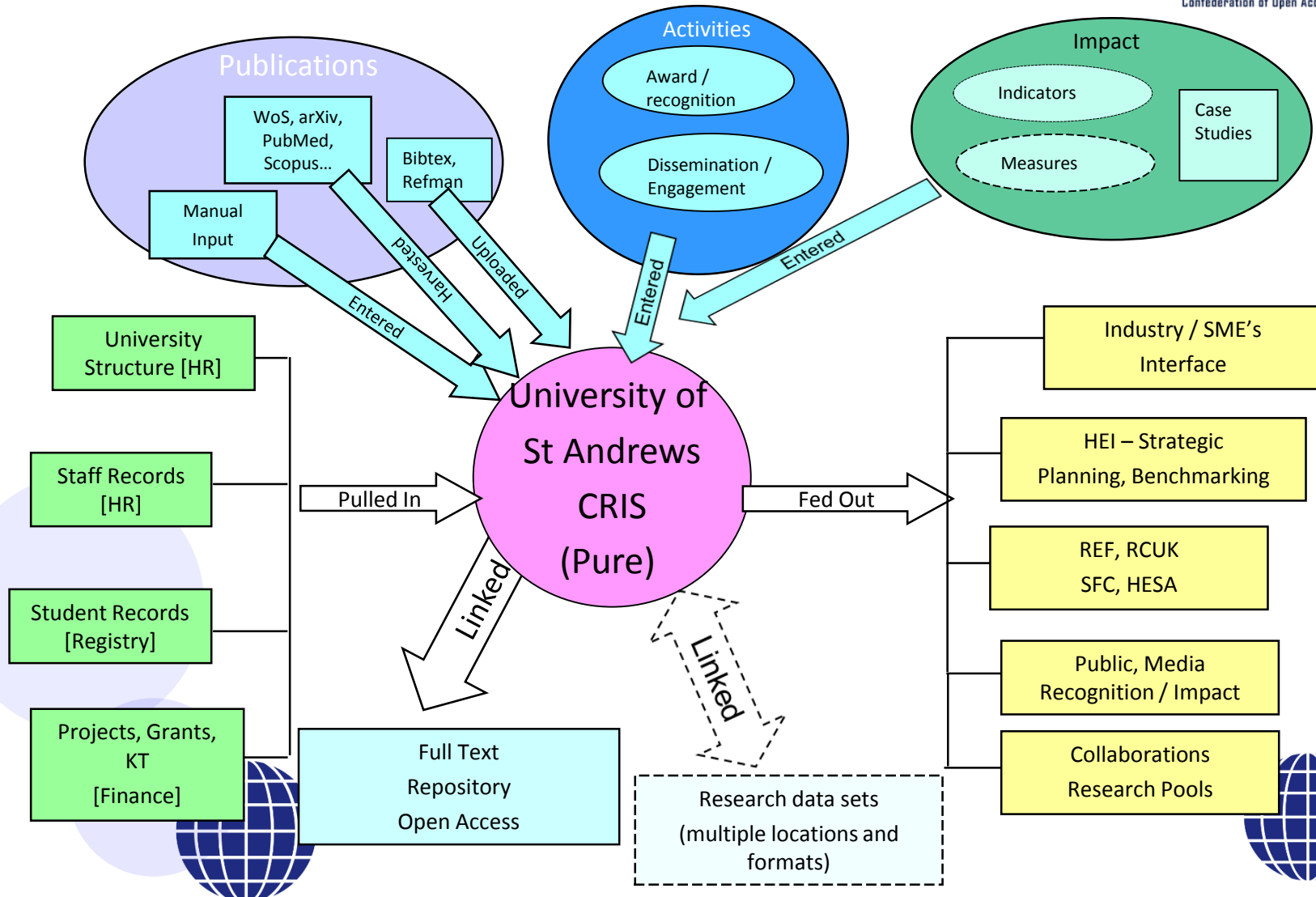
Contact the repository team for further information: [Janet Aucock](#) (Repository Manager), [Jackie Proven](#) (Research Publications and Open Access), [David Collins](#) (Etheses) or see our web pages about [related services](#).

**Search**

Enter some text in the box below to search Repository.

**Communities in DSpace**





# Die Schlüssel-Herausforderungen (aus IR-Sicht):

- Das Verhältnis CERIF – bibliographische Formate
- Integration von Services (Interoperabilität)

Dringend empfohlen:

**Kommunikation zum Erfahrungsaustausch und  
zur Bündelung der Aktivitäten**

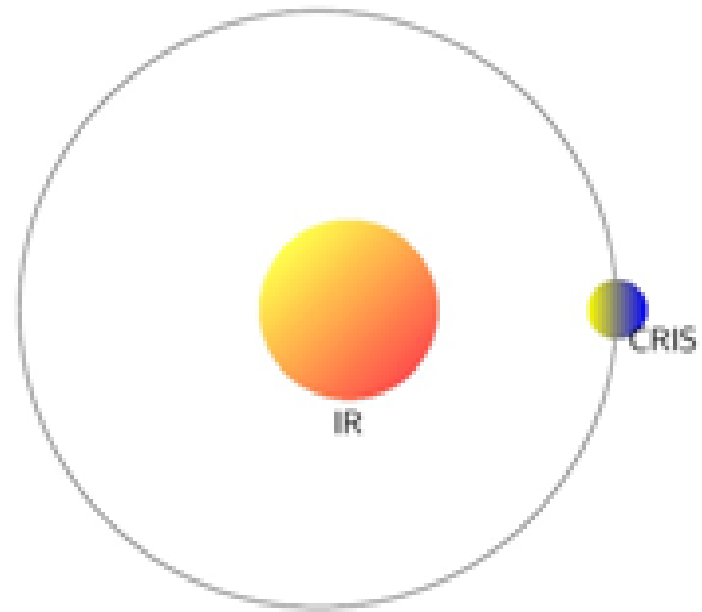
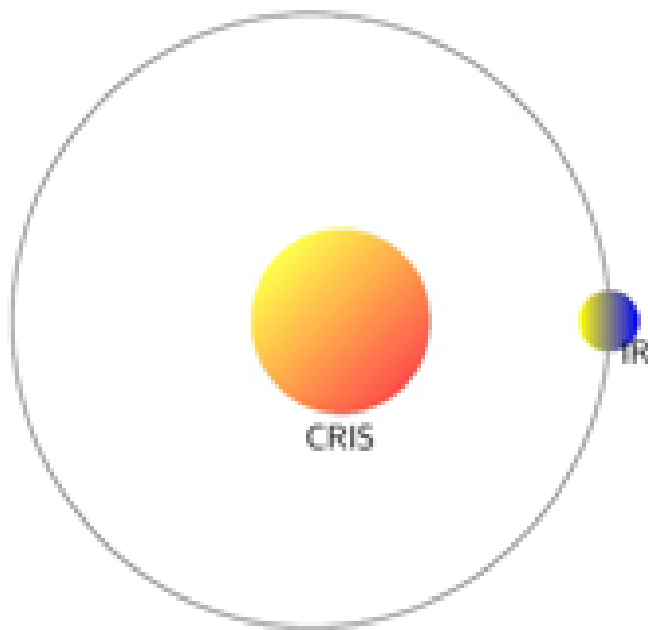


# Zusammenfassung

- Nicht unbedingt ein Gegensatz – Interoperabilität ist das Kernthema
- Kommunikation ist die Schlüsselstrategie



“Not quite a dichotomy –  
interoperability the key feature”



“Not quite a dichotomy –  
interoperability the key feature”



# Danke!

